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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,355	04/12/2006	Takco Arai	09792909-6657	8112
26263 7590 08/02/2007 SONNENSCHN NATH & ROSENTHAL LLP P.O. BOX 061080 WACKER DRIVE STATION, SEARS TOWER CHICAGO, IL 60606-1080			EXAMINER KANG, EDMUND C	
			ART UNIT 2885	PAPER NUMBER
			MAIL DATE 08/02/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,355	Applicant(s) ARAI ET AL.	
	Examiner Edmund C. Kang	Art Unit 2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04/12/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/12/2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>04/12/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claims 1-4 are objected to because of the following informalities:

Regarding claim 1, it is unclear which part of the claim is the preamble, and which part is the body of the claim. It is unclear whether the preamble is "A backlight comprised of:" (claim 1, line 1), or "A backlight comprised of a light source unit...the backlight device comprising:" (claim 1, lines 1-3).

Regarding claims 2-4, the limitation "reflection surface" (claim 2, line 2; claim 3, line 2; claim 4, line 2) should be --a reflection surface--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Pelka (US 6,007,209).

Regarding claim 1,

Pelka discloses,

A backlight device comprised of:

a light source unit (Figs. 4) in which a large number of light emitting diodes (Figs. 3-5, 12, 13) are mounted,

a reflection plate (Figs. 3-5, 14) for reflecting rays of light emitted from the light source unit (col. 3, lines 59-61, "...the housing 14 comprises a diffusively reflecting cavity..."),

wherein the reflection plate is composed of a bottom surface reflection plate (Figs. 3-5, 15) for reflecting, from the bottom surface direction, rays of light emitted from

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the light source unit, side face reflection plates (Figs. 3 and 5, **16**) for reflecting rays of light emitted from respective forward and backward, and left and right side surface directions, and corner reflection plates (Figs. 3-5, **72**) for covering respective corner portions where the bottom surface reflection plate and the side surface reflection plates are connected (col. 4, lines 14-20, "...baffles 72 thus extend around the entire perimeter of the aperture 18..."; Fig. 4).

Regarding claim 2,

Pelka further discloses,

wherein a reflection surface of the corner reflection plate takes polygonal shape (Fig. 4 – rectangular shape of corner reflection plate 72).

Regarding claim 3,

Pelka further discloses,

wherein a reflection surface of the corner reflection plate take flat plate shape (Fig. 4 – LEDs 12 are all on the same plane due to the flat planar shape of the corner reflection plate 72).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (JP 10-134619) in view of GC Corp (JP 2001-195904).

Regarding claim 1,

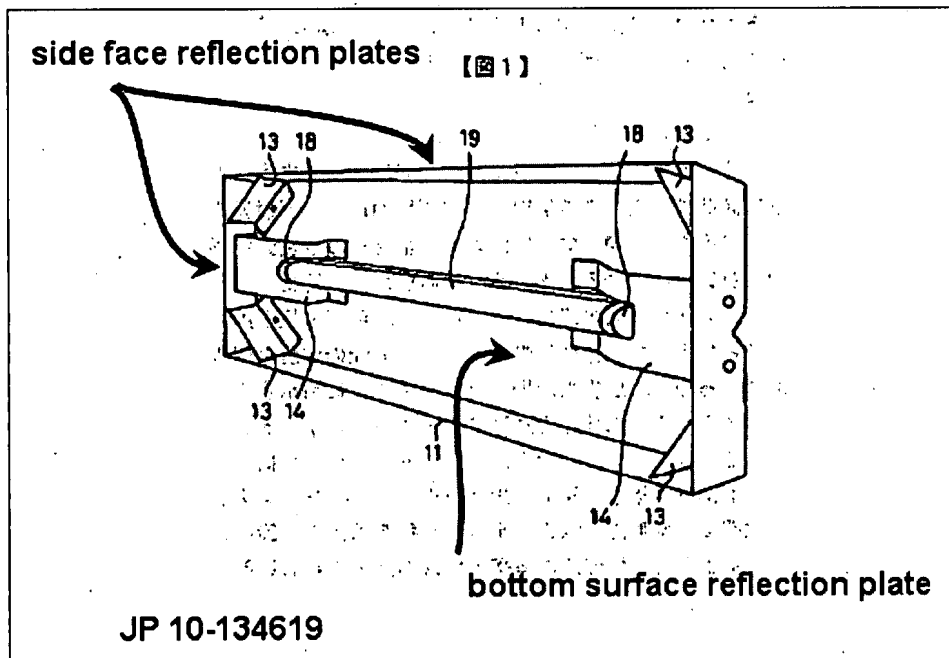
Watanabe discloses,

A backlight device comprised of:

a light source unit (Figs. 1-3, **18, 19**),

a reflection plate (Figs. 1-3, **11**) for reflecting rays of light emitted from the light source unit (Abstract, lines 5-8, "A boxy body 11 whose surface has mirror surface luster..."),

wherein the reflection plate is composed of a bottom surface reflection plate (see annotated Fig. 1 below) for reflecting, from the bottom surface direction, rays of light emitted from the light source unit, side face reflection plates (annotated Fig. 1) for reflecting rays of light emitted from respective forward and backward, and left and right side surface directions, and corner reflection plates (Figs. 1-3, **13**) for covering respective corner portions where the bottom surface reflection plate and the side surface reflection plates are connected.



Watanabe does not disclose that the light source unit has a large number of light emitting diodes.

However, GC Corp teaches a light source unit (Fig. 1, 10) in which a large number of light emitting diodes (Fig. 1, 13) are mounted.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the backlight device of Watanabe, by mounting a large number of light emitting diodes to the light source unit as taught by GC Corp, in order to remove a need for an inverter or ballast that is required by conventional fluorescent devices, thereby reducing thickness and weight of the backlight device, and also conserving power and increasing illumination lifetime (GC Corp, Abstract, lines 2-6).

Regarding claim 2,

Watanabe further discloses,

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wherein a reflection surface (Abstract, line 11-12, "...whose reflection surfaces include mirror surface luster...") of the corner reflection plate takes polygonal shape (Figs. 1 and 3 – corner reflection plates 13 are polygonal, specifically rectangular).

Regarding claim 3,

Watanabe further discloses,

wherein a reflection surface (Abstract, line 11-12, "...whose reflection surfaces include mirror surface luster...") of the corner reflection plates take flat plate shape (Figs. 1 and 3 – corner reflection plates are flat plates, specifically rectangular planes).

Regarding claim 4,

The teachings of Watanabe in view of GC Corp have been discussed above.

Watanabe further discloses a reflection surface (Abstract, line 11-12, "...whose reflection surfaces include mirror surface luster...") of the corner reflection plate.

Watanabe does not teach that the reflection surface of the corner reflection plate takes spherical shape.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the backlight device of Watanabe in view of GC Corp, by changing the shape of the reflection surface of the corner reflection plate to be spherical, since lacking any criticality, changing the form or shape of prior art parts does not make the claimed invention patentable over that prior art (*In re Dailey*, 149 UPQ 47).

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8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harrison Denki KK (JP 07-169309) in view of GC Corp (JP 2001-195904).

Regarding claim 1,

Harrison discloses,

A backlight device comprised of:

a light source unit (Figs. 1, 4),

a reflection plate (Figs. 1-2, 3) for reflecting rays of light emitted from the light source unit (see Fig. 3),

wherein the reflection plate is composed of a bottom surface reflection plate (Figs. 1-2, 3c) for reflecting, from the bottom surface direction, rays of light emitted from the light source unit, side face reflection plates (Figs. 1-2, 3a, 3b, 3b') for reflecting rays of light emitted from respective forward and backward, and left and right side surface directions, and corner reflection plates (Figs. 1-2, 3e) for covering respective corner portions where the bottom surface reflection plate and the side surface reflection plates are connected (Abstract, lines 9-14, "...3e is formed of either one of a region surface where the inner surfaces of side walls 3a, 3b, 3b' at corners formed by circumferential side walls 3a-3b, 3a-ab' of a casing 3 and a bottom wall surface are crossed...").

Harrison does not disclose that the light source unit has a large number of light emitting diodes.

However, GC Corp teaches a light source unit (Fig. 1, 10) in which a large number of light emitting diodes (Fig. 1, 13) are mounted.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the backlight device of Harrison, by mounting a large number of light emitting diodes to the light source unit as taught by GC Corp, in order to remove a need for an inverter or ballast that is required by conventional fluorescent devices, thereby reducing thickness and weight of the backlight device, and also conserving power and increasing illumination lifetime (GC Corp, Abstract, lines 2-6).

Regarding claim 4,

Harrison further discloses,

wherein a reflection surface of the corner reflection plate takes spherical shape (Abstract, lines 9-14, "a three dimensional curve surface 3e...").

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Moreau (US 2,242,590) discloses a reflector that has bottom surfaces and side surfaces that are separated by corner reflection surfaces.

McNamara, Jr. (US 3,701,898) discloses a reflector that has corner reflecting surfaces that are planar and polygonal.

Hsiao et al. (US 7,178,951 B1) discloses a backlight assembly with bottom surface reflector, side reflectors, corner reflection plates, and LED light sources.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edmund C. Kang whose telephone number is (571) 272-9083. The examiner can normally be reached on 7:30am-5:00pm EST; 1st Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Edmund C Kang
Examiner
Art Unit 2885



ECK